DOCUMENT RESUME

ED 096 141 SE 018 043

AUTHOR	Johnstone, W. T., Jr.
TITLE	Cycles.
INSTITUTION	Delaware State Dept. of Public Instruction, Dover.; Del Mod System, Dover, Del.
SPONS AGENCY	National Science Foundation, Washington, D.C.
REPORT NO	NSF-GW-6703
PUB DATE	30 Jun 73
NOTE	9p.
EDRS PRICE	MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS	*Autoinstructional Programs; *Biology; Grade 10; Instruction; *Instructional Materials; Physical Sciences; Science Education; Secondary School Science; Teacher Developed Materials; Units of Study (Subject Fields)
IDENTIFIERS	*Del Mod System

ABSTRACT

This autoinstructional unit deals with both biological and physical science phenomena. It is directed toward students in biology classes at grade 10 level. No prerequisites are suggested. The behavioral objectives are cited. Equipment and materials needed are listed. The student guide includes the objectives and activities to be accomplished. A bibliography of two references is presented. (EB)

ED 061141

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CYCLES

Prepared By

W. T. Johnstone, Jr.
Science Teacher
NEWARK SCHOOL DISTRICT

June 30, 1973

Printed and disseminated through the office of the Del Mod Component Coordinator for the State Department of Public Instruction, John G. Townsend Building, Dover, Delaware 19901

SE 018 043

Preparation of this monograph was supported by the National Science Foundation Grant No. G.W. 6703 to the Del Mod System, P. O. Box 192, Dover, Delaware 19901

THE COUNCIL OF PRESIDENTS

THE UNIVERSITY OF DELAWARE

E. Arthur Trabant, *President*
Daniel C. Neale, *Coordinating Council on Teacher Education*
Robert L. Uffelman, *Coordinator*

DELAWARE STATE COLLEGE

Luna I. Mishoe, *President*
M. Milford Caldwell, *Coordinating Council on Teacher Education*
Ralph Hazelton, *Coordinator*

DELAWARE TECHNICAL AND COMMUNITY COLLEGE

Paul K. Weatherly, *President*
Ruth M. Laws, *Coordinating Council on Teacher Education*
Ethel L. Lantis, *Coordinator*

STATE DEPARTMENT OF PUBLIC INSTRUCTION

Kenneth C. Madden, *State Superintendent*
Randall L. Broyles, *Coordinating Council on Teacher Education*
John F. Reiher, *Coordinator*

DEL MOD SYSTEM

Charlotte H. Purnell, *State Director*
John A. Bolig, *Research Director*

CYCLES

TEACHER'S GUIDE

Packet Number - AT 591.51
J

Subject - Biology

Grade - 10

Level - H M L

Prerequisites - None

Behavioral Objectives

1. Given a series of diagrams, the student will be able to choose those which represent cycles.
2. Given a diagram of a cycle, the student will be able to write an explanation of the cycle.
3. Given a written or oral description, the student will be able to diagram a cycle.

Equipment and Materials

1 Cardboard Visual (#1)

2 Acetate Visuals (#2, #3)

4 35 MM Slides (#4 - #7)

1 Paper Clip

Sample Evaluation — Student Guide

Space ✓ Carrel

Bibliography:

Biological Science Curriculum Study, Biological Sciences, An Inquiry into Life (2nd Ed.) Harcourt Brace & World, Inc. 1969. New York, pp. 12, 119, 680.

Nilsson, The Point 1970. RCA Victor, Side 1, No. 4 "Think About Your Troubles"

CYCLES

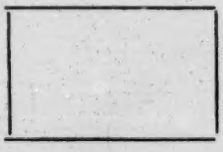
Student Guide

Objectives:

By the time you've completed this A.T. you will be able to:

1. recognize any cycle as diagrammed.
2. explain any cycle you see diagrammed.
3. diagram any cycle presented to you in a written or oral form.

I. How can a cycle be recognized?

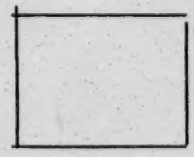
Commitment 

Explain:

_____

_____

_____

Post-commitment 

Explain 1:

_____

_____

_____

Explain 2:

_____ _____

_____

_____

II. If cycles have no beginning or end, how can you explain them?

_____

_____

_____

_____

III. How do you diagram a cycle from an oral or written description?

THINK ABOUT YOUR TROUBLES

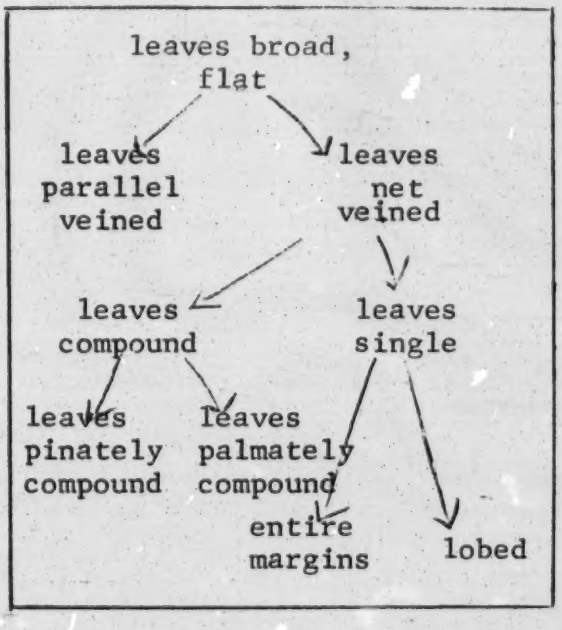
Sit beside the breakfast table
Think about your troubles
Pour yourself a cup of tea
Then think about the bubbles
You can take your teardrops
And drop 'em in a teacup
Take 'em down--to the riverside
And throw 'em over the side
To be swept up by a current,
Then taken to the ocean,
To be eaten by some fishes,
Who were eaten by some fishes,
And swallowed by a whale,
Who grew so old,
He decomposed
He dies, and left his body
To the bottom of the ocean.
Now everybody knows
That when a body decomposes
The basic elements
Are given back to the ocean,
And the sea does what it ough'ta
And soon there's salty water,
Which is not too good for drinkin'
'Cause it tastes just like a teardrop
So we run it through a filter
And it comes out from a faucet,
Where it pours into a teapot
Which is just about to bubble,
Now!
Think about your troubles.

THINK ABOUT YOUR TROUBLES
(Your diagram)

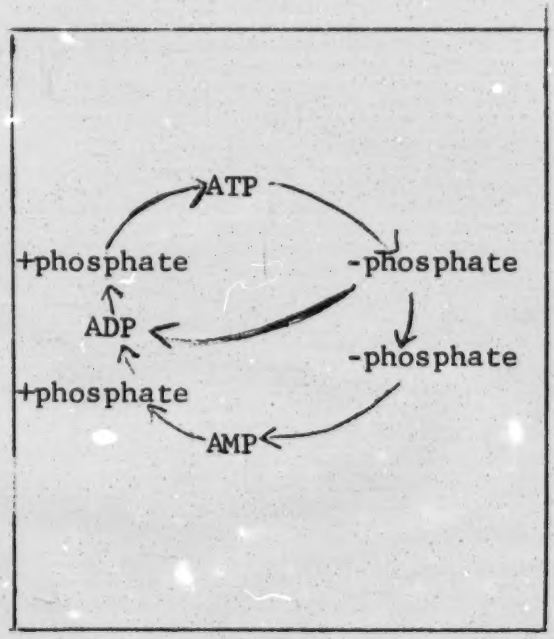
Teardrops

IV. Self-evaluation

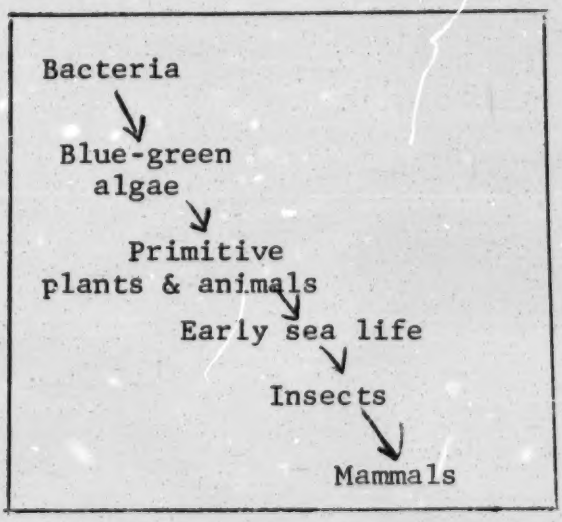
A. Which of the following are cycles? Place their numbers in the answer block.



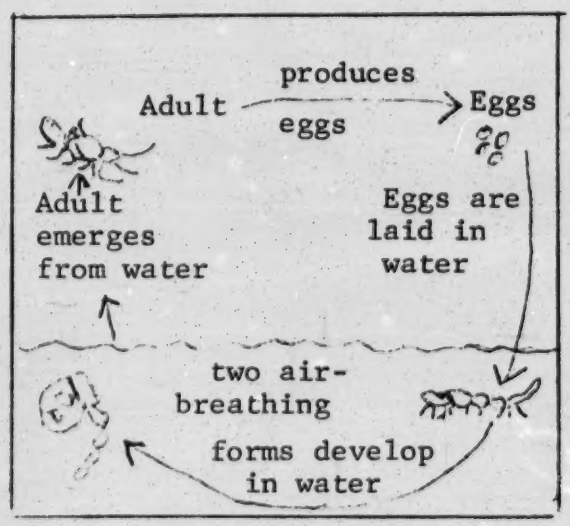
1.



2.



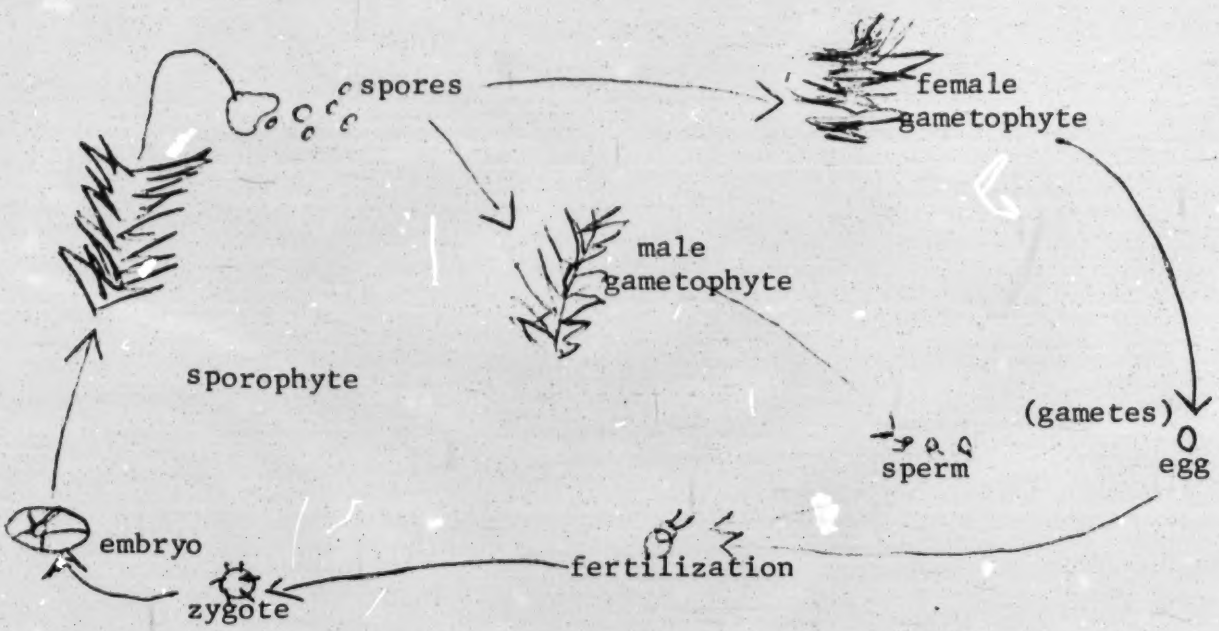
#3.



4.

Answer

B. Explain the following cycle in words.



LIFE CYCLE OF A MOSS

C. Diagram the following cycle on the next page.

Clouds develop into rain clouds, producing rain which falls on the land and into rivers, lakes and seas. Water runs off from land into bodies of water. Water evaporates from the land and bodies of water, into the sky where it forms clouds.

C. Diagram.

Answers

A. ?, 4.

B. As you know, it is possible to start anywhere in a cycle explanation. Here's an example:

C.